

U.S. Patent Application Serial No. 10/691,016  
Reply to Office Action dated May 17, 2005

**Remarks:**

Applicants have read and considered the Office Action dated May 17, 2005 and the references cited therein. Claims 1-37, 49, 50, 57, 76 and 77 have been cancelled without prejudice. Claims 67-75 have been withdrawn. New claims 79-82 have been added. Claims 38, 48, 51, 52, 58, 63-66 and 78 have been amended. Claims 38-48, 51-56, 58-75 and 78-82 remain pending.

In the Action, the Information Disclosure Statement has been considered. Applicants further note that the Examiner has requested copies of the foreign and non-patent literature. Applicants are compiling the references and are supplying them to the Examiner.

Applicants acknowledge that the Restriction Requirement has been made Final.

The Specification was objected to because the cross references to the related applications needed to be updated. The specification has been updated and is believed to overcome the objection.

Claims 38, 40-42, 49 and 76 were rejected under 35 U.S.C. § 102(b) as being anticipated by Brumat. The Action asserts that Brumat discloses an apparatus for vineyard mechanization comprising a mechanical pruner, mechanical shoot thinner, and a mechanical fruit thinner. The Action states that the apparatus of Brumat inherently discloses the method steps recited in claim 38. Applicants respectfully traverse the rejection.

Claim 38 recites a mechanized method for vineyard cultivation, comprising mechanical pruning using a first tool as a mechanical pruner; shoot thinning using a second tool as a mechanical shoot thinner, and fruit thinning after shoot thinning using a mechanical fruit thinner. Applicants assert that Brumat neither teaches nor suggests the steps and/or the devices for carrying out the steps. Moreover, Applicants assert that Brumat has a configuration that does not

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allow carrying out the various steps as it is not suitable for carrying out each of the recited method steps.

The Action contends that Brumat discloses a mechanical pruner stated to be a "pair of operating arms for topping" at column 2, line 18; stated to be a mechanical shoot thinner "operating arms intended for bud/sucker removal" at column 2, lines 7-8; and a mechanical fruit thinner, also stated to be the operating arms intended for bud/sucker removal, at column 2, lines 7-8 as buds are removed. Applicants respectfully assert that the characterization of Brumat is incorrect. The present invention recites mechanical pruning using a first tool as a mechanical pruner. A pair of arms for topping are not a mechanical pruner as shown by the present invention under a correct definition of "pruning" as understood in the vinicultural field. Brumat teaches only a vertical brush and a vertical sickle bar that is simply not suitable for carrying the various operations. Brumat simply cannot conduct the various operations with its tools, and is clearly not suited for carrying out such operations with most trellis systems, wherein pruning and thinning typically require access beneath the support wires of the trellis. Applicants assert that a divided canopy type system is unsuitable for the Brumat devices.

In addition, Brumat neither teaches nor suggests the coordination of each of the steps. The present invention recites mechanical pruning using a first tool as a mechanical pruner. Brumat does not mention pruning anywhere throughout the patent. Moreover, although Brumat does discuss shoot and sucker removal, it does not discuss shoot thinning and pruning. The assertion that bud and sucker removal is fruit thinning is also incorrect. As stated in claim 38, fruit thinning occurs after shoot thinning and uses a fruit thinner device. Brumat only teaches the same operating arms for bud or sucker removal, but Brumat does not teach the entire method wherein mechanical pruning, mechanical shoot thinning and mechanical fruit thinning after shoot thinning are conducted. After careful inspection of the Brumat reference, which is incapable of carrying out each of the steps and does not truly carry out the steps as recited in the claims, Applicants assert that Brumat does not anticipate claim 38. Moreover, Applicants assert that the

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entire mechanized method of vineyard cultivation wherein each of the steps are mechanized, is neither shown nor suggested by Brumat or any other prior art references, or combination thereof. Applicants assert that claim 38 overcomes the rejection under Brumat.

Applicants further assert that claim 40 is not anticipated by Brumat as Brumat teaches only a sickle bar and a brush device, but does not teach a striking tool. Moreover, claims 41 and 42 recite further detail regarding pruning, which as stated above, is not actually conducted by the Brumat reference. Applicants assert that claims 41 and 42 therefore also distinguish over Brumat for these additional reasons.

Claims 49 and 76 have been cancelled. Applicants assert that the rejection under 35 U.S.C. § 102 has been overcome and requests that the rejection be withdrawn.

Claims 39, 43, 44-46, 48, 50 and 77 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brumat in view of Hiyama et al. Applicants assert that for the reasons stated above, the present invention distinguishes over Brumat. However, Applicants further assert that Hiyama does not address the shortcomings discussed above with regard to Brumat. Hiyama only teaches a combination harvester and sprayer and does not teach or suggest the mechanical pruning or shoot thinning. Applicants further note that Hiyama is not used for vineyards, but is adapted for use in harvesting raisins, which requires a different method than cultivation of grapes in vineyards. Applicants assert that claim 38 and the claims depending therefrom, are allowable over Brumat and Hiyama for at least the reasons discussed above.

Applicants assert that claim 48 recites mechanical pruning during the dormant period with a dedicated mechanical pruning tool, mechanical shoot thinning during a growing period with a dedicated mechanical shoot thinning tool, where pruning and shoot thinning are coordinated to arrive at a predetermined yield, and mechanical harvesting with a dedicated mechanical harvesting tool. The Office Action asserts that it would be obvious to combine Brumat with the mechanized harvester of Hiyama to arrive at the present invention. As stated

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above, Hiyama merely discloses a spraying and drying system and a harvester for harvesting raisins rather than harvesting grapes, which is an entirely different process. Moreover, neither of the references teaches mechanical pruning during a dormant period. In fact, dormancy or the word dormant is never mentioned in either of the cited references. Claim 48 further recites mechanical shoot thinning during the growing period with a dedicated mechanical shoot thinning tool, wherein the pruning and shoot thinning are coordinated to arrive at a predetermined yield. As stated above, neither of the references teaches or suggests mechanical pruning or mechanical shoot thinning. Moreover, none of the references teach or suggest, even when combined, coordinating the various mechanized steps to arrive at a predetermined yield. As the prior art references are not used for a complete mechanized cultivation method and the times at which the various operations are conducted and coordination of mechanized operations are conducted is not mentioned or alluded to, Applicants assert that claim 48 also patentably distinguishes over the combination of prior art references.

Claims 47, 51, 52, 55-58 and 60-62 are rejected under 35 U.S.C. § 103 as being unpatentable over Brumat in view of Mead et al. The Office Action states that Mead teaches leaf removal and that it would have been obvious to combine with the devices of Brumat. Applicants assert that Brumat fails to anticipate the present invention for the reasons stated above. Moreover, Mead fails to address the shortcomings with regard to the pruning and shoot thinning, which are not addressed by Brumat or any other prior art. Applicants assert that claim 47 is allowable for the reasons discussed above with regard to claim 38. Moreover, claim 51 is allowable as Brumat cannot be operated with single curtain trellis systems as it does not provide proper access for conducting the recited method steps.

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Claims 52, 55-58 and 60-62 are also believed to be allowable. All recite pruning by a mechanical pruner during a dormant period. As asserted above, none of the references teach or suggest true mechanical pruning and none teach or suggest conducting mechanical pruning during a dormant period. Moreover, claim 52 recites shoot thinning with a mechanical shoot thinner and fruit thinning after shoot thinning and before fruit is ready for harvest with a mechanical fruit thinner. Again, this is neither shown nor suggested by Brumat, Hiyama, Mead or any other prior art. The primary reference Brumat does not teach mechanical pruning during the dormant period, shoot thinning and fruit thinning after shoot thinning and before fruit is ready for harvest. Moreover, Applicants assert that none of the cited references is operable to open centers of a top portion of a vine with a mechanical unit and keeping the centers clean using a mechanical unit. The Brumat reference teaches only brush and Mead teaches sets of brushes that are disposed on opposite sides of a trellis rather than configured for opening centers of a top portion of a vine. Moreover, neither of the other references are configured for conducting such an operation. Applicants assert that claim 52 is allowable for these reasons. In addition, claim 55 recites that the opening comprises using a slapper unit and claim 56 states that the centers are cleaned with a breaker unit and none of the prior art teaches or suggest such devices or conducting such operations with such devices. In addition, Applicants assert that the cited art cannot perform such operations as they are not configured for such operations, nor can they be adapted to such operations.

In a similar manner, claim 58 is also believed to be allowable for the reasons stated above with regard to claim 55 as well as other reasons. Applicants assert that the claims depending from claim 58 are also allowable for at least those reasons as well as others.

Claim 53, 59 and 63-66 are rejected as being unpatentable over Brumat, in view of Mead et al., and further in view of Hiyama et al. These references have been discussed above. Applicants assert that claim 63 is allowable for the reasons stated above as the Brumat reference does not anticipate the recited method and does not teach mechanical pruning and mechanical

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shoot thinning. Moreover, none of the prior art teaches or suggests fruit thinning after shoot thinning and before fruit is ready for harvest. As stated above, the various steps including canopy removal and harvesting and are coordinated in such a manner to achieve improved results over the prior art. None of the prior art references teaches or suggests such a cultivation method. Moreover, Hiyama is directed to a raisin harvester rather than grapes in a vineyard. Applicants assert that claim 63 patentably distinguishes over the prior art for at least these reasons and those discussed above. For similar reasons, Applicants assert that claims 64, 65 and 66 also distinguish over the prior art or any combination thereof. None of the prior art references teach or suggest dormant pruning with a mechanical pruner, shoot thinning during a growing period with a mechanical shoot thinner, and fruit thinning after shoot thinning and before fruit is ready for harvest. Moreover, Applicants assert that the prior art references are not suited for the methods recited with the trellis systems that are stated. Applicants further assert that the prior art references do not teach or suggest how the prior art devices could be modified or combined to achieve a system that would function for the recited trellis system.

Claim 54 is rejected as being unpatentable over Brumat, in view of Mead et al., and further in view of Oldridge. The Action asserts that claim 54 does not disclose a shoot positioner but that Oldridge does. Oldridge however does not overcome the other shortcomings of the prior art and Applicants assert that claim 54 is allowable for the reasons stated above.

Finally, claim 78 was rejected as being unpatentable under 35 U.S.C. § 103(a) over Brumat in view of Childers et al. The Action states that Childers shows use of an apparatus with a GDC trellis. However, Applicants assert that Childers does not overcome the shortcomings discussed above with regard to Brumat. Moreover, even when combined, the references do not achieve the method of the present invention.

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New claim 79 further clarifies that the various mechanized procedures are conducted at different, separate times of the year. This is neither disclosed nor suggested by the prior art or any combination thereof.

New claim 80 recites that pruning is performed to remove a predetermined percentage of grapevines, canes and their shoots and shoot thinning is performed to remove a predetermined percentage of shoots and fruit thinning is performed to remove a predetermined percentage of fruit. Applicants assert that none of the prior art suggests any sort of determination of the amount that should be removed but only that the various steps alleged to have been recited are conducted.

Claim 81 recites that the pruning and shoot thinning are coordinated to achieve a predetermined load density and yield. As discussed in the present application, if the pruning and shoot thinning are coordinated and a predetermined node density and yield are achieved, the quality is substantially maintained as compared to cultivation conducted by hand. None of the prior art teaches or suggests any sort of coordination or achieving a node density and yield. Applicants assert that claim 81 patentably distinguishes over the prior art or any combination thereof.

Claim 82 recites that the shoot thinning removes shoots below the grapevine cordon. Applicants assert that Brumat teaches only vertical devices that are not configured for accessing portions of the grapevine below the cordon. Moreover, Brumat cannot be modified and none of the other prior art references teach or suggest how to modify Brumat so that such steps can be achieved.

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As the claims of the present invention patentably distinguish over the prior art or any combination thereof, Applicants assert that the claims are now in condition for allowance. A speedy and favorable action in the form of a Notice of Allowance is hereby solicited. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicant's representative at (612) 336-4728.



Respectfully submitted,

MERCHANT & GOULD P.C.

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